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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|--|---------------------|------------------|
| 09/779,283 | 02/08/2001 | William H. Gong | 37,248-01 | 6597 |
| 4249 | 7590 | 08/26/2003 | | |
| CAROL WILSON BP AMERICA INC. MAIL CODE 5 EAST 4101 WINFIELD ROAD WARRENVILLE, IL 60555 | | <p>EXAMINER GRiffin, WALTER DEAN</p> | | |
| | | <p>ART UNIT 1764</p> | | |
| DATE MAILED: 08/26/2003 | | | | 9 |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------|--------------|-----------|
| Office Action Summary | Application No. | Applicant(s) | <i>OF</i> |
| | 09/779,283 | GONG ET AL. | |
| | Examiner | Art Unit | |
| | Walter D. Griffin | 1764 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 June 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2 and 4-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 15-20 is/are allowed.
- 6) Claim(s) 1,2,4-14 and 21 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some *
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>7</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4-8, 11, 14, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0252606 in view of Schultz et al. (US 2,365,220).

The EP reference discloses a process for the production of a fuel. The process comprises contacting a hydrocarbon fraction with oxygen in the presence of a soluble catalyst system to produce an oxidized product with improved characteristics including improved cetane number.

The hydrocarbon fractions are middle distillates that would necessarily have API gravities within the claimed range and they may contain sulfur or nitrogen. While not explicitly stating that the nitrogen compounds are oxidized, these compounds would necessarily be oxidized to some extent as claimed since the disclosed feeds, catalysts and conditions are the same or similar to the claimed features. The soluble catalyst contains metals as claimed. The oxidized product is treated by separating an aqueous portion from the organic portion. The hydrocarbon to be oxidized may be hydrotreated prior to oxidation by contacting the hydrocarbon with a supported Group VI and/or VIII metal catalyst at hydrotreating conditions. The oxidation process may treat the entire hydrocarbon stream or a fraction of it. See page 3, lines 1-35; page 4, lines 41-58; page 5, lines 1-32; page 20, lines 1-13; and the examples.

The EP reference does not disclose treating the oxidized product with a neutralizing agent, does not disclose recycling the catalyst as in claim 4, does not disclose the percent by weight of metal in the hydrotreating catalyst as in claim 6, and does not disclose the partitioning of fractions of claims 7 and 11.

The Schultz reference discloses the need for neutralizing acids in oxidized hydrocarbon streams. See page 6, right column, lines 23-54.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the EP process by neutralizing the oxidized product as suggested by Schultz because a stable, non-acidic product will result.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the EP reference by recycling the catalyst because the economics of the process will be improved.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the EP reference by utilizing amounts of metals in the hydrotreating catalyst as claimed because suitable catalysts are well known to those skilled in the art and therefore one would utilize a catalyst having metal amounts that result in the desired hydrotreating effect.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the EP reference by partitioning fractions as claimed because the reference discloses that only a fraction of the feed may be treated by oxidizing. Therefore, one of skill in the art would choose the fractions that would result in the desired product.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0252606 in view of Lyons et al. (US 4,375,361).

As discussed above, the EP reference does not disclose catalysts having the formula as in claims 9 and 10.

The Lyons reference discloses that metal acetylacetones are effective hydrocarbon oxidation catalysts. These compounds have the same structure as claimed. No halogen-containing component is present in the catalyst. See col. 2, lines 4-33.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the EP reference by utilizing the catalysts disclosed by Lyons because these catalysts are effective in hydrocarbon oxidation processes and therefore would be expected to be effective in the EP process.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0252606 in view of Schultz et al. (US 2,365,220) as applied to claim 21 above, and further in view of Farkas et al. (US 2,472,152).

The Farkas reference discloses that oxidized hydrocarbon streams can be neutralized by contacting the streams with alkali metal carbonates, bicarbonates, and hydroxides. See column 9, line 30 through column 10, line 13.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the previously discussed references by utilizing a carbonate or bicarbonate neutralizing agent as suggested by Farkas because these neutralizing agents would neutralize acids equivalently to the neutralizing agents disclosed by Schultz.

Response to Arguments

The argument that the EP reference does not disclose or suggest the oxidation of nitrogen compounds is not persuasive. One cannot conclude from the evidence in the examples that nitrogen is not oxidized in the EP process. Since the evidence only indicates that nitrogen contents are below a certain same amount both prior to and after the conversion process, one cannot draw the conclusion that no oxidation of nitrogen compounds occurs. In fact, the examiner asserts that the oxidation of the nitrogen compounds would necessarily occur to some extent in the EP process because of the similarities between the EP and claimed processes.

The argument that the recycling of the catalyst is not suggested by the prior art is not persuasive. The examiner maintains that one of ordinary skill in the art would recognize that any

recovered catalyst should be recycled to improve the economics of the process regardless of whether or not recycling is disclosed in the prior art references.

The argument that there is no motivation to combine the EP and Lyons references is not persuasive. The chemical and physical similarities between the hydrocarbons in the Lyons and EP references would result in the expectation that the catalysts of Lyons would be effective in the EP process.

Allowable Subject Matter

Claims 15-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or suggest a process as claimed in which the high boiling part is contacted with an organic peracid, the resulting phase is separated, and the oxidized phase is contacted with a sorbent.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

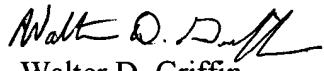
Art Unit: 1764

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.


Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
August 20, 2003